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**GRENADERS, HAND, RIOT CONTROL**

The objective of this procedure is to determine the technical performance and safety aspects of riot control hand grenades relative to the criteria cited in applicable Qualitative Materiel Requirements (QMR's), Small Development Requirements (SDR's), Technical Characteristics (TC's), and other requirements and documents that pertain to the test item.

Riot control hand grenades are designed for utilization in controlling riots and similar disturbances and for combat employment in harassing, incapacitating, or canalizing hostile enemy forces. These grenades are classified as either "bursting-type" or "burning-type". The bursting-type grenade is often chosen in preference to the burning-type since the bursting-type cannot be easily kicked aside or thrown back by personnel against whom it is used. However, the burning-type grenade does have an advantage in that it virtually eliminates the probability of serious injury from fragmentation effects. This is a highly desirable feature since the riot control hand grenade should temporarily incapacitate rather than injure personnel. Chemicals used as riot control grenade fills include both irritants and temporary incapacitating agents.

a. Meteorological Equipment:

- b. Photographic Equipment (color and black and white)

- c. Stop Watch
- d. Protective Masks and Clothing
- e. Materials Handling Equipment
- f. Catapult Launcher
- g. Gridded Test Site
- h. Sampling Equipment to Collect Agent Dispersed
- i. Test Animals, if required
- j. Laboratory Facilities to analyze agent
- k. Decontaminating Equipment
- l. Environmental Test Chambers:

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- 1) Temperature/humidity
- 2) Explosive atmosphere
- 3) Salt fog
- 4) Pressure - Altitude
- 5) Fungus
- 6) Rain
- 7) Dust
- 8) Sunshine

m. Blast Meter

4.

REFERENCES

- A. FM 3-8, Chemical Corps Reference Handbook
- B. TM 3-250, Storage, Shipment, and Handling of Chemical Agents and Hazardous Chemicals
- C. TM 3-300, Ground Chemical Munitions
- D. MIL-STD-331, Fuze and Fuze Components, Environmental and Performance Tests for, 10 January 1966
- E. MIL-STD-810B, Environmental Test Methods, 15 June 1967
- F. AR 705-15, Operation of Materiel Under Extreme Conditions of Environment
- G. AR 705-35, Criteria for Air Portability and Air Drop of Materiel
- H. AMC Regulation 385-224, AMC Safety Manual
- I. AMC Pamphlet 706-134, Engineering Design Handbook, Maintainability Guide for Design, February 1966
- J. TECP Interim Pamphlets of 10-100 series
- K. Woodson, W. E. and Conover, D. W., Human Engineering Guide to Equipment Designers, Second Edition, University of California Press, Berkeley, California, 1966
- L. MTP 7-1-002, Air Portability and Air Drop Service Testing
- M. MTP 7-2-509, Air Drop Capability of Materiel
- N. MTP 8-2-500, Receipt Inspection
- O. MTP 8-2-503, Rough Handling and Surface Transport
- P. MTP 8-2-509, Radiography
- Q. MTP 8-2-510, Decontamination
- R. MTP 8-2-512, Leak Testing of Agent-Filled Munitions and Containers
- S. MTP 8-2-513, Dissemination Characteristics, CB Munitions/Dissemination Devices

5.

SCOPE

5.1

SUMMARY

The following procedures shall be performed on a selective basis as required to determine if the test item meets the criteria established:

a. Receipt Inspection - An inspection of the test item, as received, to: (1) determine its physical characteristics and condition; (2) locate any defects it might have; and (3) identify damage received during transport. During this inspection, the test items will also be serialized for subsequent

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identification purposes.

b. Safety Evaluation - The objective of this procedure is to check the safety statement (see Glossary) issued by the developing agency, and to identify the safety hazards, if any, which must be included in the Safety Release Recommendation required by USATECOM Regulation 385-6.

c. Simulated Environmental Testing - A study to determine the effects of extreme temperatures, fungus, humidity, dust, sunshine, explosive atmosphere, and water (fresh and salt water) on the test item.

d. Rough Handling and Surface Transport - A study to determine the effects of rough handling and surface transport on the physical and operational characteristics of the test item.

e. Air Transportability - A study to determine the effects of air transport conditions on the physical and operational characteristics of the test item.

f. Air Drop Capability - A study to determine the effects on the test item resulting from its being subjected to air drop conditions and to determine the ease or difficulty involved in delivery of the test item by parachutist.

g. Radiography - A study to determine the structural and internal condition of the test item.

h. Decontamination Aspects - A study to determine the ease or difficulty involved in decontamination of the test item and the effects of the process on the test item.

i. Dissemination Characteristics - A study to determine if the test item meets the established criteria for dissemination of its agent fill.

j. Leak Testing - A study to determine if the test item leaks when subjected to standard leak tests and conditions.

k. Operational Reliability - A study to determine if the test item meets specified reliability criteria.

l. Vulnerability - A study to: (1) determine if the test item is vulnerable to damage by small arms fire and; (2) determine whether electromagnetic radiation has any effects on the munition or its components.

m. Susceptibility to Sympathetic Detonation - A study to determine if the grenades will sympathetically detonate from the force of nearby explosions.

n. Agent/Hardware Compatibility - A study to determine if the chemical agent fill and casing have a deleterious effect on each other.

o. Maintenance Aspects - A study to determine the maintenance required if the components have been damaged by leakage, etc., and to evaluate the test item from a design for maintainability standpoint.

## 5.2 LIMITATIONS

None

## 6. PROCEDURES

### 6.1 PREPARATION FOR TEST

#### 6.1.1 Safety Statement

The test officer shall ensure that a safety statement has been received from the developing agency and is understood before the test is

started. The safety statement includes information pertaining to operational limitations and specific hazards peculiar to the test item.

#### 6.1.2 Safety

a. Test and subtest plans and procedures shall ensure performance in the safest manner consistent with accomplishing the mission. The cardinal principle is to limit exposure of a minimum of personnel, for a minimum time to a minimum amount of hazardous material consistent with safe and efficient operations. Plans shall include safety procedures, precautions, protections, and emergency procedures as necessary. Technical information on the hazards and safety characteristics of the test item as provided by the safety statement (see Glossary) and other pertinent information shall be included. Such information shall include evaluation of potential hazards, analysis of risks, limitations, and precautions including special test equipment and techniques that should be incorporated in test plans and procedures.

b. The bursting-type of grenade shall be tested only with a mechanical grenade thrower or specially designed and approved apparatus or facilities. All personnel shall be under cover during the tests.

c. A specific individual shall be charged with responsibility for safety of each test. He shall be familiar with the construction and operation of the test item and its critical components, shall have full knowledge of the hazards and safety aspects of the test, and shall review test procedures for evaluation of hazards and recommend control measures.

d. All personnel who participate in or observe the tests shall be briefed on the hazards involved and proper test methods and procedures.

#### 6.1.3 Security

Security considerations shall be adequately determined and provided for as applicable for each procedure.

#### 6.1.4 Logistical Requirements

Prior to the conduct of the test, the test officer shall ensure that all logistical requirements are satisfied.

### 6.2 TEST CONDUCT

#### 6.2.1 Receipt Inspection

The test item shall be subject to the applicable procedures of MTP 8-2-500 following its arrival at the test site with emphasis on the following:

a. Adequacy of grenade containers - Visually inspect the containers and record the following:

- 1) Damage (broken seals, dents, punctures, etc.)
- 2) Evidence of exploded grenade(s) (container burst open)

- 3) Rust and/or corrosion of metal ends
- 4) Illegible or missing markings
- 5) Deterioration of fiber cylinders, tape, etc.
- 6) Nomenclature markings

b. Test item inspection:

- 1) Visually inspect each test item and record all deficiencies, specifically the following:
  - a) Missing arming pin
  - b) Incorrect assembly of arming pin
  - c) Inverted arming sleeve
  - d) Grenade body cracks (to include open body, other cracks)

NOTE: If the body of the grenade is split open at a seam or crack, observe the agent filling to determine if it is cracked or agglomerated.

- e) Other deterioration of the grenade body
- f) Corrosion of metal parts

NOTE: Findings shall be recorded by location, extent and severity.

- g) Loose or missing closure or filling plugs and other missing components
- h) Nomenclature markings

- 2) Determine the presence of internal damage to test item as described in the radiography procedures of paragraph 6.2.7.
- 3) Determine the test item's leakage as described in paragraph 6.2.10.

c. Determine and record the following:

- 1) Length, width, height, and weight of the packaged test item
- 2) Length, maximum height and diameter and weight of the test item

d. Number and identify each test item to be used.

e. Obtain photographs of damaged items.

6.2.2 Safety Evaluation

Determine the test item's safety by performing the following:

NOTE: These procedures shall be used to verify the safety aspects included in the safety statement prepared by the developing agency.

6.2.2.1 40 Foot Drop Test

a. Subject a minimum of 5 test items, with fuze elements, to the 40 foot drop test of reference 4D (MIL-STD-331) Test 103.

b. At the completion of the drop test, perform the following:

- 1) Record the number of test items that exploded.
- 2) Visually inspect the test items and record any damages or deformation.
- 3) Disassemble the test item and record if fuze detonated or burning had taken place.
- 4) Photograph damage, explosion and evidence of burning and fuze detonation.

6.2.2.2 5 Foot Drop Test

a. Subject a minimum of 10 test items, with fuze, to the 5 foot drop test of reference 4D (MIL-STD-331) Test 111.

b. At the completion of the drop test, perform the following:

- 1) Record the number of test items that exploded.
- 2) Visually inspect the test item and record any damages or deformation.
- 3) Disassemble the test item and record if fuze detonated or if burning had taken place.
- 4) Photograph damage, explosion, and evidence of burning.

6.2.2.3 Temperature and Humidity Test

a. Subject a minimum of 20 test items, with fuze, to the temperature and humidity cycle of reference 4D (MIL-STD-331) Test 105.

b. At the completion of the temperature humidity cycling, perform the following:

- 1) Visually examine the test items and record any deterioration noted.
- 2) Disassemble 1/4 of the test items and visually examine the components. Record all damages and signs of deterioration.
- 3) Subject 1/4 of the test items to the procedures of paragraph 6.2.2.1.
- 4) Subject 1/2 of the test items to the procedures of paragraph 6.2.2.2.

6.2.2.4 Salt Spray Test

a. Subject a minimum of 20 test items, with fuze elements, to the 96 hour exposure test of reference 4D (MIL-STD-331) Test 107.

b. At the completion of the exposure period, perform the following:

- 1) Visually examine the test items and record any damages noted.

- 2) Disassemble 1/4 of the test items and visually examine the components. Record all signs of deterioration.
- 3) Subject 1/4 of the test items to the procedures of paragraph 6.2.2.1.
- 4) Subject 1/2 of the test items to the procedures of paragraph 6.2.2.2.

6.2.2.5 Safety Statement Verification and Safety Release Recommendation

- a. Perform additional checks as required to verify all the safety aspects included in the safety statement prepared by the developing agency.
- b. Collect data to be included in the Safety Release Recommendation (see Glossary) required by USATECOM Regulation 385-6.

6.2.3 Simulated Environmental Testing

6.2.3.1 Extreme Temperature Tests

Unless otherwise directed, the test items shall be subject to the following temperature tests:

6.2.3.1.1 Low Temperature Tests - Place a minimum of 15 test items, which have successfully passed the leak test of paragraph 6.2.10, in a temperature chamber and perform the following:

- a. Reduce the chamber temperature to -80°F (-62.2°C), maintain it at -80°F for a period of 72 hours, and then visually inspect the test item and record any damages.
- b. Raise the chamber temperature to -65°F (-53.9°C) or its minimum operating temperature, and maintain this temperature until stabilization is reached. If stabilization is attained in less than 24 hours, maintain temperature for a complete 24 hour interval. Perform the following:

NOTE: Stabilization, unless otherwise specified, is considered to be reached when the temperature of the test item does not change more than 3.6°F (2.°C) per hour.

- 1) Visually inspect the test item and record any damages.
- 2) Remove 1/3 of the test items and verify their operability as described in paragraph 6.2.12.

NOTE: Operability checks should be accomplished within 15 minutes of removing the test items from the chamber.

c. Increase the chamber temperature to local ambient temperature and perform the following:

- 1) Visually inspect the test item and record any damages.
- 2) Subject 1/2 of the test items to the leak test procedures of paragraph 6.2.10.



- 3) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.12.

6.2.3.1.2 High Temperature Tests - Place a minimum of 15 test items, which have successfully passed the leak test of paragraph 6.2.10, in a temperature chamber and perform the following:

- a. Adjust the chamber to a temperature of 155°F (88.3°C) and an absolute humidity of 13 grains/ft.<sup>3</sup>, and maintain these conditions for a minimum of 4 hours, then visually inspect the test items and record any damages.

- b. Adjust the chamber to a temperature of 120°F (48.9°C) and a relative humidity of no greater than 15% and maintain these conditions for a minimum of 24 hours and perform the following:

- 1) Visually inspect the test items and record any damages.
- 2) Remove 1/2 the test items and perform the following:

- a) Subject 1/2 of the test items to the leak test of paragraph 6.2.10.
- b) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.12.

- c. Adjust the chamber to local ambient temperature and humidity and perform the following:

- 1) Visually inspect the test items and record any damages.
- 2) Subject 1/2 of the test items to the leak test of paragraph 6.2.10.
- 3) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.12.

#### 6.2.3.2 Fungus Test

- a. Subject a minimum of 10 test items, with fuze elements, to the fungi exposure of reference 4E (MIL-STD-810) Method 508.

- b. At the completion of the exposure period, perform the following:

- 1) Disassemble 1/2 of the test items and record, if any, fungus was present on the test item components.
- 2) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.12.

#### 6.2.3.3 Humidity Test

- a. Subject a minimum of 10 test items, with fuze elements, to the humidity cycling of reference 4E (MIL-STD-810) Method 507.

- b. At the completion of the cycling period, perform the following:

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- 1) Visually inspect the test items and record any signs of corrosion.
- 2) Disassemble 1/2 of the test items and inspect the components for corrosion and/or deterioration.
- 3) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.12.

#### 6.2.3.4 Dust Test

- a. Subject a minimum of 10 test items, with fuze elements, to exposure conditions of reference 4E (MIL-STD-810) Method 510.
- b. At the completion of the exposure period, perform the following:

- 1) Visually inspect the test items and record any surface damages noted.
- 2) Disassemble 1/2 of the test items and inspect the components for damages and/or the presence of dust.
- 3) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.12.

#### 6.2.3.5 Sunshine Test

- a. Subject a minimum of 10 test items, with fuze elements, to the sunshine conditions of reference 4E (MIL-STD-810) Method 505.
- b. At the completion of the exposure period, perform the following:

- 1) Visually inspect the test items and record surface damages noted.

NOTE: Sunshine causes heating of equipment and fading of fabric colors, checking of paints, and deterioration of natural rubber and plastics.

- 2) Subject 1/2 of the test items to the leak test of paragraph 6.2.10.
- 3) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.12.

#### 6.2.3.6 Explosive Atmosphere Test

- a. Prepare a minimum of 15 test items, with fuze elements, as described in Procedure II of Method 511 of reference 4E (MIL-STD-810).
- b. Subject 1/3 of the test items to steps 1 through 3 of Method 511 at a simulated altitude of 5,000 feet. Record, when applicable, a "main chamber" explosion.
- c. Repeat step b at ground level and at 2500 feet.

#### 6.2.3.7 Water Immersion Tests

- a. Immerse a minimum of 2 containers of test items, with fuze elements,

packaged in their original containers, in water to a predetermined depth.

NOTE: The water depth and temperature, and location of immersion shall be in accordance with applicable criteria and quality control system requirements and stipulated in the test directive.

b. Record the following with the test items immersed:

- 1) Depth of water over container
- 2) Temperature of water
- 3) Presence of bubbling to indicate container leakage
- 4) Immersion time until bubbling occurs
- 5) Total immersion time

c. At the completion of the immersion test, remove the test items from their containers and perform the following:

- 1) Visually inspect the test items for, and record the presence of, corrosion.
- 2) Disassemble 1/3 of the test items and inspect the components for, and record:
  - a) Evidence of water penetration
  - b) Presence of corrosion
- 3) Subject 1/3 of the test items to the leakage test of paragraph 6.2.10.
- 4) Verify the operability of the test items by subjecting the remaining items to the procedures of paragraph 6.2.12.

d. Repeat steps a through c with a minimum of 15 unpacked test items, with fuze elements.

#### 6.2.3.8 Salt Fog Test

a. Subject a minimum of 15 test items, with fuze elements, to the conditions of Method 509 of reference 4E (MIL-STD-810).

b. At the completion of the salt fog spray exposure, perform the following:

- 1) Rinse the test items with clear water.
- 2) Visually inspect the test items for and record the presence of corrosion.
- 3) Disassemble 1/3 of the test items and inspect the components for; and record:
  - a) Evidence of water penetration
  - b) Presence of corrosion
- 4) Subject 1/3 of the test items to the leakage test of paragraph 6.2.10.

- 5) Verify the operability of the test items by subjecting the remaining items to the procedures of paragraph 6.2.12.

#### 6.2.3.9 Rain Test

- a. Subject a minimum of 15 test items, with fuze elements, to the rain conditions of Method 506 of reference 4E (MIL-STD-810).
- b. At the completion of the rain exposure, perform the following:
  - 1) Visually inspect the test items for, and record the presence of, corrosion
  - 2) Disassemble 1/3 of the test items and inspect the components for, and record:
    - a) Evidence of water penetration
    - b) Presence of corrosion
  - 3) Subject 1/3 of the test items to the leakage test of paragraph 6.2.10.
  - 4) Verify the operability of the test items by subjecting the remaining items to the procedures of paragraph 6.2.12.

#### 6.2.4 Rough Handling and Surface Transport Tests

##### 6.2.4.1 Handling and Transportation Test

- a. Subject a minimum of 10 test items, with fuze elements packaged in their original containers, to the applicable procedures of MTP 8-2-503.
- b. At the completion of testing, perform the following:
  - 1) Visually examine the test items package for, and record the presence of cracks, breaks, undone binding, etc.
  - 2) Visually examine the test items for, and record the presence of, damages and/or deformations.
  - 3) Subject 1/2 of the test items to the following:
    - a) Radiography test of paragraph 6.2.7.
    - b) Leak test of paragraph 6.2.2.10.
  - 4) Verify the operability of the test item by subjecting the remaining items to the procedures of paragraph 6.2.12.

##### 6.2.4.2 Vibration Test

- a. Subject a minimum of 10 test items, with fuze elements packaged in their original containers, to the procedures of Equipment Class g (Shipment by Common Carrier) of Method 514 of reference 4E (MIL-STD-810).
- b. At the completion of testing, repeat the procedures of paragraph 6.2.4.1.b.

##### 6.2.4.3 Shock Test

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a. Subject a minimum of 10 test items, with fuze elements packaged in their original containers, to each applicable Transit Test of Method 516 of reference 4E (MIL-STD-810).

b. At the completion of each transit test performed, repeat the procedures of paragraph 6.2.4.1.b.

#### 6.2.5 Air Transportability

Determine the effects of pressure-altitude and vibration, similar to that which will be experienced by the test item in flight as follows, and the ease of loading/unloading aircraft as follows:

##### 6.2.5.1 Loading/Unloading

NOTE: Background information on air transportability is contained in MTP 7-1-002.

a. Load the test items, in their shipping containers, aboard aircraft, or simulated aircraft facilities as indicated in the test plan loading schedule using normal loading equipment and record the following:

- 1) Type of aircraft used/simulated
- 2) Shipping container length, width, height, weight, and material
- 3) Equipment used for loading
- 4) Difficulties encountered while loading
- 5) Method of tie-down
- 6) Damage incurred to the package while loading

b. Unload the test items from the aircraft/simulated aircraft and record:

- 1) Equipment used in unloading
- 2) Difficulties encountered while unloading

##### 6.2.5.2 Simulated Flight Test

a. Subject a minimum of 10 test items, with fuze elements in their shipping containers, to the following simulated conditions simultaneously:

- 1) Ambient pressure of the maximum altitude the test item is expected to be flown
- 2) Flight vibration conditions as described in the procedures of Equipment Class g (Shipment by Common Carrier) of Method 514 of reference 4E (MIL-STD-810).

b. At the completion of the simulated pressure-altitude/vibration testing, subject the test items to the procedures of paragraph 6.2.4.1.b.

#### 6.2.6 Air Drop Capability

#### 6.2.6.1 Shipping Container Test

Subject a minimum of 4 containers of the test item, packaged in their original containers, to the applicable sections of MTP 7-2-509 and as follows:

a. Rig the test containers, with accelerometers attached in the appropriate air drop containers and drop the containers from aircraft flying at the altitude and speed stipulated in the test plan. Record the following:

- 1) Aircraft used
- 2) Aircraft altitude
- 3) Aircraft air speed
- 4) Meteorological conditions
- 5) Air delivery system trajectory and impact velocities
- 6) Acceleration "G" force magnitude at impact

b. Conduct visual coverage of the air drop test procedures with motion and still camera.

c. At the completion of the test, perform the following:

- 1) Visually examine the test item's package for, and record the presence of breaks, undone bindings, etc.
- 2) Visually examine the test items for, and record the presence of damages and/or deformations.
- 3) Subject 1/2 of the test items to the leakage test of paragraph 6.2.10.
- 4) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.12.

#### 6.2.6.2 Aerial Delivery by Parachutist

Perform the following:

a. Subject a minimum of 20 test items to aerial delivery by parachutists wearing the test items during the jump operation and equipped with other items normally carried.

b. Record any interference with other items of clothing, equipment or with the normal mobility of the parachutist during transport and jump operations.

c. Inspect the test items after landing and record any evidence of damage.

d. Disassemble 1/2 of the test items and inspect the components for damage.

e. Verify the operability of the test items using the procedures of paragraph 6.2.12.

#### 6.2.7 Radiography

a. Determine the internal and structural condition of the test item,

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using radiography, as described in the applicable sections of MTP 8-2-509 as directed in the test plan or at following times:

- 1) Upon receipt of the item
- 2) At the conclusion of:
  - a) Rough handling and surface transport tests (paragraph 6.2.4)
  - b) Simulated flight tests (paragraph 6.2.5.2)

b. Record the position of the test item while undergoing radiography tests.

NOTE: The test item's position shall be based upon applicable test criteria.

#### 6.2.8 Decontamination Aspects

Conduct decontamination testing of the test item as described by the applicable sections of MTP 8-2-510 and determine and record the following:

- a. Decontamination agents and methods which provide the most satisfactory results.
- b. The operability of the test item using the procedures of paragraph 6.2.12.

#### 6.2.9 Dissemination Characteristics

- a. Determine the dissemination characteristics of the test item as described in the applicable sections of MTP 8-2-513.
- b. In addition to the data collected during the conduct of MTP 8-2-513, record the following:

- 1) Description of sampling techniques
- 2) Results of sampling and analysis
- 3) Effects of the agent on animals, if used

NOTE: If animals are used, the animal reactions shall be evaluated by use of appropriate medical personnel and facilities.

- 4) Description of cloud and dispersion characteristics

c. Obtain motion pictures of the testing from initial functioning to final cloud dispersion.

#### 6.2.10 Leak Testing

Determine if the test item leaks as described in the applicable sections of MTP 8-2-512 at the completion of the following:

- a. Receipt inspection (paragraph 6.2.1)
- b. Extreme temperature tests (paragraph 6.2.3.1)

- c. Sunshine test (paragraph 6.2.3.5)
- d. Salt fog tests (paragraph 6.2.3.8)
- e. Rain tests (paragraph 6.2.3.9)
- f. Water immersion tests (paragraph 6.2.3.7)
- g. Rough handling and surface transportability tests (paragraph 6.2.4)
- h. Simulated flight tests (paragraph 6.2.5.2)

6.2.11 Maintenance Aspects

- a. Determine the test item(s) maintenance aspects in accordance with AMC Pamphlet 706-134.
- b. Determine and record the following, as required:
  - 1) Ease of maintenance performed
  - 2) Component interchangeability
  - 3) Adequacy and accuracy of the maintenance documentation
  - 4) Maintenance category of the test item
- c. Obtain and retain motion pictures showing assembly and disassembly.

6.2.12 Operational Reliability

- NOTE: 1. Reliability testing shall be conducted under the conditions prescribed in the test criteria and other applicable instructions, as based upon the requirements contained in the applicable QMR or SDR and TC's.
2. Unless other requirements are specified by the test plan (i.e., testing the item in the "as received" condition, after long periods of storage, etc.), the test items undergoing operation reliability testing shall have previously been subject to the following test procedure:
- a. Simulated environmental testing, less explosive atmosphere (paragraph 6.2.3.6)
  - b. Rough handling and surface transport tests (paragraph 6.2.4)
  - c. Simulated flight tests (paragraph 6.2.5.2)
  - d. Air drop capability (paragraph 6.2.6)
  - e. Decontamination aspects (paragraph 6.2.8)

Select a suitable test site for the following tests:

NOTE: The test site shall meet all safety requirements and be of sufficient area to ensure that contamination is confined to the test site.

6.2.12.1 Static Test

- a. Position the test item for static firing.
- b. Attach a lanyard to the safety ring or make other suitable arrangements for remote removal of the safety pin.
- c. Using the lanyard, etc., function the grenade.



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d. Photograph the test items, using high-speed cameras at the number of frames per second prescribed or appropriate to the test item. Record the camera speed.

e. Record the following for each firing:

- 1) Ambient temperature
- 2) Relative humidity
- 3) Wind direction and speed
- 4) Effects of the test item on animals, when applicable
- 5) Operability of the test item, to include:
  - a) Fuze delay time
  - b) Ignition delay time (burning-type grenades)
  - c) Burning time (burning-type grenades)
  - d) Periods of interrupted agent emission (burning-type grenade)
- 6) Force necessary to withdraw the fuze safety
- 7) If the fuze safety failed during extraction, the force which produced failure
- 8) Occurrence of the following:
  - a) Dud
  - b) Flamer (measure and record the relative location and duration of any flaming)
  - c) Exploder (burning-type grenade having side or end seams ruptured with attendant forceful explosion of agent mixture and turnout)
- f. Obtain samples of the test item contaminant for laboratory analyses.
- g. Record total number of test items tested.

#### 6.2.12.2 Dynamic Test

a. Launch (throw) the test item by use of a catapult or other launching means as prescribed by the test plan.

NOTE: When specified by the test plan and approved by safety authorities, manual pulling of the safety ring and hand throwing may be performed.

b. Repeat steps d through f of paragraph 6.2.12.1 and record the method of throwing the grenade.

#### 6.2.13 Vulnerability

##### 6.2.13.1 Small Arms Penetration

Determine the ability of the test item to resist detonation and/or leakage by means of small arms fire by the following procedures:

a. Using caliber of ammunition as directed by the test plan,

subject a minimum of 10 test items, with fuze elements, as follows:

- 1) Expose five test items, suspended vertically, to small arms fire as specified in the test plan.
- 2) Expose five test items, suspended horizontally, to small arms fire as specified in the test plan.

b. Record the following:

- 1) Method of suspension
- 2) Caliber of the small arms
- 3) Firing pattern (angle of fire)
- 4) Number of test items detonated
- 5) Number of test items subject to leakage

c. Verify the operability of the unexploded test items using the procedure of paragraph 6.2.12.

#### 6.2.13.2 EMR Vulnerability

Analyze the test item and determine whether electromagnetic radiation (EMR) vulnerability need be considered. If a study is considered necessary, perform the following:

- a. The test director shall familiarize himself with the munition instrumentation and calibration of electro-explosive devices (EED).
- b. Determine and record the frequencies where effects will most likely occur.
- c. Instrument the bridgewire of the EED to monitor and record its temperature.

NOTE: The EED bridgewire temperature is proportional to the amount of current flow and can be calibrated by passing known currents through the bridgewire.

d. Arrange the test items in various configurations as specified in the test plan.

e. Apply electromagnetic radiation for each frequency determined in step b above.

NOTE: Only the most effective polarity shall be used. In areas of apparent resonance, both horizontal and vertical polarities shall be investigated in accordance with applicable criteria as defined in the test plan.

f. Record the following:

- 1) Frequency of operation
- 2) Polarity of radiated signal
- 3) Temperature of the EED bridgewire

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6.2.14 Susceptibility to Sympathetic Detonation

- a. Place the grenades to be tested around, and adjacent to, a grenade(s) to be detonated.
- b. Record the following:

- 1) Description of the test site
- 2) Number of test items:
  - a) Being detonated
  - b) Undergoing sympathetic detonating testing
- 3) Identification of the test items:
  - a) Being detonated
  - b) Undergoing sympathetic detonating testing

NOTE: The number of test items detonated and undergoing sympathetic detonation testing shall be specified in the test plan.

- 4) Distance between:
  - a) Detonated test items, if applicable
  - b) Detonated test item(s) and test items undergoing sympathetic detonating testing
  - c) Sympathetic detonated test items
- c. Detonate the center test item(s) and record the following:
  - 1) Time between true detonation and sympathetic detonation(s), if any
  - 2) Number of sympathetic detonations
- d. Obtain high-speed photographs of the detonation(s).

NOTE: If sympathetic detonations occur in a significant number of grenades, as stipulated in the test plan, repeat steps a through c using various ratios of grenades detonated/grenades sympathetically detonated, and various distances between grenades.

6.2.15 Agent/Hardware Compatibility

- a. Remove agent from grenade and cross-section the grenade.
- b. Clean any remaining agent from the inner wall of the grenade.
- c. Inspect inner surface of grenade for, and record the presence of corrosion, pitting, rust, peeling paint, or any deleterious effect agent fill may have had on grenade wall.
- d. Use microscopic type photography to compare surface of casing of unfilled grenade with one which previously contained agent fill. Record fill effects.

e. Determine purity of agent fill removed from grenade and compare with initial purity of agent (production specification).

6.2.16 Human Factors

Throughout the conduct of this MTP, observations shall be made relative to the human factors aspects of the test item, inconveniences recorded regarding ease of handling and ease of reading, and understanding instructional material. Specific areas of observation shall include the following:

- a. Compatibility with field clothing and equipment, i.e., ease of handling items when wearing protective clothing, gloves, etc.
- b. Simplicity and adequacy of operating instructions.
- c. Test item's design conformance (whether it is as small and lightweight as possible commensurate with higher priority characteristics).
- d. Legibility of identification markings.
- e. Reactions of using personnel when throwing the test item.

6.3 TEST DATA

6.3.1 Receipt Inspection

a. Record the following for each test item:

- 1) Test item identification number
- 2) Receipt inspection data collected as described in the applicable sections of MTP 8-2-500.
- 3) Test item description
- 4) Total number of test items inspected
- 5) Leakage data collected as described in paragraph 6.2.10
- 6) Radiography data collected as described in paragraph 6.2.7

b. Retain all photographs.

6.3.2 Safety Evaluation

6.3.2.1 40 Foot Drop Test

a. Record the following for each test item:

- 1) Test item identification number
- 2) Damage or deformation incurred
- 3) Evidence of burning or detonation

b. Retain all photographs.

6.3.2.2 5 Foot Drop Test

a. Record the following for each test item:

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- 1) Test item identification number
- 2) Damage or deformation incurred
- 3) Evidence of burning or detonation

b. Retain all photographs.

#### 6.3.2.3 Temperature and Humidity Test

a. Record the following for each test item:

- 1) Test item identification number
- 2) External signs of deterioration
- 3) Evidence of internal damage and/or deterioration
- 4) For test items undergoing 40 foot drop test:

- a) Damage or deformation incurred
- b) Evidence of burning or detonation

5) For test items undergoing 5 foot drop test:

- a) Damage or deformation incurred
- b) Evidence of burning or detonation

b. Retain all photographs.

#### 6.3.2.4 Salt Spray Test

a. Record the following for each test item:

- 1) Test item identification number
- 2) External signs of deterioration
- 3) Evidence of internal damage or deterioration
- 4) Results of the 5 foot drop test:

- a) Damage or deformation incurred
- b) Evidence of burning or detonation

b. Retain all photographs.

#### 6.3.2.5 Safety Statement Verification

a. Record the results of checking deficiencies indicated in the Safety Statement.

b. Information for inclusion in the Safety Release Recommendation.

#### 6.3.3 Simulated Environmental Tests

##### 6.3.3.1 Extreme Temperature Tests

##### 6.3.3.1.1 Low Temperature Tests -

Record the following for each test item, as applicable:

- a. Test item identification number
- b. For temperature of -80°F:
  - 1) Damages incurred
- c. For temperature of -65°F:
  - 1) Damages incurred
  - 2) Operability data collected as described in paragraph 6.2.12.
- d. For ambient temperature:
  - 1) Temperature in °F
  - 2) Test item damage
  - 3) Leakage data collected as described in paragraph 6.2.10.
  - 4) Operability data collected as described in paragraph 6.2.12.

6.3.3.1.2 High Temperature Tests -

Record the following for each test item, as applicable:

- a. Test item identification number
- b. For temperature of 155°F:
  - 1) Damages incurred
- c. For temperature of 120°F:
  - 1) Damages incurred
  - 2) Leakage data collected as described in paragraph 6.2.10.
  - 3) Operability data collected as described in paragraph 6.2.12.
- d. For ambient temperature:
  - 1) Temperature in °F
  - 2) Damages incurred
  - 3) Leakage data collected as described in paragraph 6.2.10.
  - 4) Operability data collected as described in paragraph 6.2.12.

6.3.3.2 Fungus Test

Record the following for each test item:

- a. Test item identification number
- b. Presence of fungus on:
  - 1) Test item
  - 2) Test item components

c. Operability data collected as described in paragraph 6.2.12.

6.3.3.3 Humidity Test

Record the following for each test item:

- a. Test item identification number
- b. Evidence of corrosion on:

- 1) Test item
- 2) Test item components

c. Operability data collected as described in paragraph 6.2.12.

6.3.3.4 Dust Test

Record the following for each test item:

- a. Test item identification number
- b. Damage to:

- 1) External surface
- 2) Test item components

c. Presence of dust on test item components

d. Operability data collected as described in paragraph 6.2.12.

6.3.3.5 Sunshine Test

Record the following for each test item:

- a. Test identification number
- b. Damage to:

- 1) External surface
- 2) Test item components

c. Leakage data collected as described in paragraph 6.2.10.

d. Operability data collected as described in paragraph 6.2.12.

6.3.3.6 Explosive Atmosphere Test

Record the following for each test item, as applicable:

- a. Test item identification number
- b. Simulated altitude (5,000 ft., 2500 ft., ground level)
- c. Evidence of ignition
- d. Main chamber explosion, if any

6.3.3.7 Water Immersion Tests

Record the following for each test item, as applicable:

- a. Packed, unpacked
- b. Test item identification number
- c. During immersion:
  - 1) Depth of water over container, in inches
  - 2) Water temperature, in °F
  - 3) Presence of bubbling, if any
  - 4) Immersion time to bubbling, if any, in minutes
  - 5) Total immersion time, in minutes
- d. For the test item:
  - 1) Presence of corrosion:
    - a) Test item
    - b) Test item components
  - 2) Presence of water penetration
  - 3) Leakage data collected as described in paragraph 6.2.10
  - 4) Operability data collected as described in paragraphs 6.2.12

#### 6.3.3.8 Salt Fog Test

Record the following for each test item, as applicable:

- a. Test item identification number
- b. Evidence of corrosion:
  - 1) Test item
  - 2) Test item components
- c. Evidence of water penetration
- d. Leakage data collected as described in paragraph 6.2.10
- e. Operability data collected as described in paragraph 6.2.12

#### 6.3.3.9 Rain Test

Record the following for each test item, as applicable:

- a. Test item identification number
- b. Presence of corrosion:
  - 1) Test item
  - 2) Test item components
- c. Evidence of water penetration
- d. Leakage data collected as described in paragraph 6.2.10
- e. Operability data collected as described in paragraph 6.2.12

#### 6.3.4 Rough Handling and Surface Transport Tests



Record the following for each test item, as applicable:

- a. Test performance (handling and transportation, shock, vibration)
- b. Test item identification number
- c. For test item container:
  - 1) Presence of cracks, breaks, etc.
  - 2) Undone binding, if applicable
- d. Damage and deformation to the test item's exterior
- e. Radiography data collected as described in paragraph 6.2.7
- f. Leakage data collected as described in paragraph 6.2.10
- g. Operability data collected as described in paragraph 6.2.12

6.3.5 Air Transportability

6.3.5.1 Loading/Unloading

Record the following:

- a. Type of aircraft used or simulated
- b. Shipping container:
  - 1) Length, width and height, in inches
  - 2) Weight, in pounds
  - 3) Material
- c. Equipment used in loading
- d. Difficulties encountered while loading
- e. Damage incurred to the package while loading
- f. Equipment used in unloading
- g. Difficulties incurred in unloading

6.3.5.2 Simulated Flight Test

Record the following for each test item, as applicable:

- a. Altitude simulated, in feet
- b. Test item identification number
- c. For test item shipping container:
  - 1) Presence of cracks, breaks, etc.
  - 2) Undone binding, if applicable
- d. For test item individual package:
  - 1) Presence of cracks, breaks, etc.
  - 2) Undone binding, if applicable
- e. Damage and deformation to the test item's exterior

- f. Radiography data collected as described in paragraph 6.2.7
- g. Leakage data collected as described in paragraph 6.2.10
- h. Operability data collected as described in paragraph 6.2.12
- i. Retain all photographs

6.3.6 Air Drop Capability

6.3.6.1 Shipping Container Test

a. Record the following for each test item:

- 1) Condition of the test item's package
- 2) Test item identification
- 3) Aircraft used
- 4) Aircraft air speed
- 5) Air conditions (calm, turbulent)
- 6) Air delivery system trajectory
- 7) Test item impact velocity in fps
- 8) Acceleration force of impact in G's
- 9) For test item package:
  - a) Packaging material used
  - b) Presence of cracks, breaks, etc.
  - c) Undone binding
- 10) For air test item:
  - a) Damage or deformities
  - b) Leakage data collected as described in paragraph 6.2.10
  - c) Operability data collected as described in paragraph 6.2.12

b. Retain all motion and still pictures

6.3.6.2 Aerial Delivery by Parachutist

a. Record the following for each test item as applicable:

- 1) Test item identification number
- 2) Aircraft position at release
- 3) Aircraft velocity at release in miles per hour
- 4) Aircraft altitude at release in feet
- 5) Impact force in pounds
- 6) Interference with parachutists' clothing or normal mobility during:
  - a) Transport operations
  - b) Jump operations
- 7) Evidence of damage to:
  - a) Test item

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b) Components (disassembled items only)

8) Operability data as collected under the applicable sections of paragraph 6.2.12

b. Retain all photographs

6.3.7 Radiography

a. Data shall be collected and recorded as described in the applicable sections of MTP 8-2-509.

b. Record the position of the test item while undergoing radiography checks.

6.3.8 Decontamination Aspects

Record the following for each test item undergoing decontamination:

a. Data collected as described in the applicable sections of MTP 8-2-510.

b. Operability data as collected under the applicable sections of paragraph 6.2.12.

6.3.9 Dissemination Characteristics

a. Record the following:

- 1) Test item identification number
- 2) Data collected as described in the applicable sections of MTP 8-2-513
- 3) Description of sampling techniques
- 4) Results of sampling and analysis
- 5) Effect of the test item agent on animals, if applicable
- 6) Description of cloud and dispersion characteristics

b. Retain all photographs

6.3.10 Leak Testing

Data shall be collected and recorded as described in the applicable sections of MTP 8-2-512.

6.3.11 Maintenance Aspects

a. Record the following:

- 1) Ease of maintenance performance
- 2) Interchangeability of components
- 3) Adequacy and accuracy of the maintenance documentation
- 4) Maintenance category of the test item

b. Retain all photographs

6.3.12 Operability Reliability

6.3.12.1 Static Test

a. Record the following for each individual test item:

- 1) Test items identification number
- 2) Temperature, in °F
- 3) Relative humidity, in percent
- 4) Wind direction and speed, in mph
- 5) Operability of the test item, including:
  - a) Fuze delay time, in seconds
  - b) Ignition delay time, in seconds (for burning grenades)
  - c) Burning time, in seconds (for burning grenades)
  - d) Periods of interrupted agent emission (for burning grenades)
- 6) Effects on the test animals, when applicable
- 7) Force, in pounds, which produced failure (if the fuze safety failed during extraction)
- 8) Force, in pounds, necessary to withdraw safety pin
- 9) Results of test item contamination laboratory analysis
- 10) Occurrence of:
  - a) Duds
  - b) When applicable, relative location and duration, in seconds of any flaming
  - c) Exploder (see paragraph 6.2.12.1.e8)
- 11) Camera speed, in frames per second

b. Total number of test items tested

c. Retain all photographs

6.3.12.2 Dynamic Test

a. Record the following:

- 1) Method of throwing the grenade (catapult, hand)
- 2) For each individual test item:
  - a) Temperature, in °F
  - b) Relative humidity, in percent
  - c) Wind direction and speed, in mph
  - d) Operability of the test item
    - (1) Fuze delay time, in seconds
    - (2) Ignition delay time, in seconds (for burning grenades)

- (3) Burning time, in seconds (for burning grenades)
- (4) Periods of interrupted agent emission (for burning grenades)
- e) Results of test item contamination laboratory analysis
- f) Force, in pounds, necessary to withdraw safety pin
- g) Force, in pounds, which produced failure (if the fuze safety failed during extraction)
- h) Occurrence of:
  - (1) Duds
  - (2) When applicable, relative location and duration, in seconds, of any flaming
  - (3) Exploder (see paragraph 6.2.12.1.e8)
- i) Camera speed, in frames per second
- b. Total number of test items tested
- c. Retain all photographs

#### 6.3.13 Vulnerability

##### 6.3.13.1 Small Arms Penetration

- a. Record the following for each test item:
  - 1) Test item identification number
  - 2) Method of suspension (vertical, horizontal)
  - 3) Caliber of small arms
  - 4) Firing pattern (vertical, horizontal, etc.)
  - 5) Evidence of detonation
  - 6) Evidence of leakage
- b. Operability data collected as described in paragraph 6.2.12

##### 6.3.13.2 EMR Vulnerability (when applicable)

Record the following for each frequency and test item:

- a. Frequency of operation in cps
- b. Test item identification number
- c. Test item configuration
- d. Polarity of radiated signal
- e. Temperature of the EED bridgewire, in °F

#### 6.3.14 Susceptibility to Sympathetic Detonation

Record the following:

- a. Description of the test site
- b. Number of test items:

- 1) Being detonated
  - 2) Undergoing sympathetic detonation tests
- c. Test item identification number for:
- 1) Test item being detonated
  - 2) Test items undergoing sympathetic detonation tests
- d. Distance between, in feet, of, as applicable:
- 1) Detonated test items
  - 2) Detonated test items and test items undergoing sympathetic detonation tests
  - 3) Sympathetic detonated test items
- e. Time between fire detonation and sympathetic detonation, in seconds, if applicable
- f. Number of sympathetic detonations
- g. Retain all photographs

6.3.15 Agent/Hardware Compatibility

- a. Record the following for each test item:
- 1) Test item identification number
  - 2) Presence of the following on the test item inner surface:
    - a) Corrosion
    - b) Pitting
    - c) Rust
    - d) Peeling paint
    - e) Any other deleterious effect of agent fill
  - 3) Effects of fill on casing surface
  - 4) Effects of grenade components on agent fill
- b. Retain all photographs
- c. Retain all laboratory analysis

6.3.16 Human Factors

Record the following for the test item:

- a. Compatibility with other equipment and clothing
- b. Simplicity and adequacy of operating instructions
- c. Test item's design conformances
- d. Legibility of identification markings
- e. Reactions of personnel when throwing, etc., the test item

6.4 DATA REDUCTION AND PRESENTATION

6.4.1 Receipt Inspection

- a. Data collected as a result of this procedure shall be presented as indicated in applicable portions of MTP 8-2-500.
- b. The description of the item, number of items tested, and conditions upon receipt shall be presented in tabular form.
- c. Results of the leak subtest shall be presented in narrative or other convenient form.
- d. Photographs and X-ray pictures shall be used to substantiate results.

6.4.2 Safety Evaluation

- a. A Safety Release Recommendation (USATECOM Regulation 385-6) shall be forwarded to U. S. Army Test and Evaluation Command within 30 days of the beginning of the test. The Safety Release Recommendation shall contain the following information: special safety considerations on hazards to personnel and materiel (including developmental types of equipment as well as standard components used in assemblage of items being tested).
- b. Data and comments relative to safety hazards observed during any phase of testing.
- c. Comments relative to suggested safety improvements.

6.4.3 Simulated Environmental Testing

- a. The results of the subtests conducted shall be presented in tabular or other suitable form.
- b. The results of the operational test performed at the conclusion of the environmental chamber testing shall be presented in narrative or other suitable form.

6.4.3.1 Exposure to Fresh and Salt Water

The results of the immersion test, rain test, salt fog spray test, and post-exposure functioning test shall be presented in tabular or other convenient form supplemented by narrative comments if required.

6.4.5 Rough Handling and Surface Transport

- a. The results of this subtest shall be presented as indicated in applicable portions of MTP 8-2-503.
- b. Tables, photographs, narrative comments or other suitable means of presentation shall be used to report the results.

6.4.5 Air Transportability

- a. Data shall be presented in summary form as indicated in the applicable sections of MTP 7-1-002, and other pertinent testing documentation and include the pressure-altitude cycling and vibration conditions the test item was subject to.

b. Present data regarding any significant aspects of the test item observed during conduct of air transport testing.

c. Present data on test item operation after subjection to the air transport testing.

#### 6.4.6 Air Drop Capability

##### 6.4.6.1 Shipping Container Test

a. The results of the subtest shall be presented as prescribed in MTP 7-2-509 and include the following:

- 1) Type of aircraft
- 2) Air speed, altitude, and meteorological conditions
- 3) Packaging material condition after test
- 4) Maximum "G" force on opening of parachute and on impact

b. Present narrative comments and data regarding ease or difficulty encountered in accomplishing air drop. Present photographs (as required) to indicate results of air drop.

c. Present data on operation and performance of the test item after air drop capability subtest.

##### 6.4.6.2 Aerial Delivery by Parachutist

a. Present data for each test item in tabular form for comparison and evaluation.

b. Narrative comments, photos, etc., shall be included, as applicable.

c. Operability results shall be presented in tabular form.

#### 6.4.7 Radiography

a. The results of this subtest shall be presented as prescribed in MTP 8-2-509.

b. X-ray photographs, supplemented by narrative explanations shall be included as required.

#### 6.4.8 Dissemination Characteristics

a. The results of this subtest shall be presented as prescribed in MTP 8-2-513.

b. Drawings, tables, charts, photographs, or other means of presentation shall be included to report sampling techniques, sampling results, results on test animals, etc.

c. Narrative comments shall be included as required.

#### 6.4.9 Decontamination Aspects

The results of this subtest shall be presented as indicated in the applicable sections of MTP 8-2-510.



6.4.10 Leak Testing

- a. The results of leak testing shall be presented as prescribed in MTP 8-2-512.  
b. Narrative comments, photos, etc., shall be included, as required.

6.4.11 Maintenance Aspects

Data from this subtest shall be presented in narrative form. The report shall be supplemented by photos, drawings, or other devices to substantiate the conclusions and recommendations.

6.4.12 Operational Reliability

Data collected in accordance with paragraph 6.3.12 shall be submitted to a qualified reliability analyst for evaluation. Evaluated data shall be presented in tabular form, or as otherwise appropriate, supplemented by graphic or art presentations and narrative comments as required to substantiate conclusions. Indicate the number of tests, number of successful performances, number of failures, and malfunctions, and present an estimate of reliability based upon the analysis of recorded data. Tables I and II are sample presentations of the test item fuze and munition operability.

TABLE I  
SAMPLE TABULAR FORMAT FOR FUZE TESTING (Burning-Type Grenades)

<u>No. of Fuzes</u>	<u>Fuze</u>	<u>Avg. Ign.</u>	<u>No. Over</u>	<u>No. Under</u>
<u>Functioned</u>	<u>Failures</u>	<u>Delay</u>	<u>Min. Ignition</u>	<u>Min. Ignition</u>
		<u>Time (Sec)</u>	<u>Delay Time</u>	<u>Delay Time</u>

TABLE II  
SAMPLE MUNITION FUNCTIONING TABULAR DATA (Burning-Type Grenades)

<u>No. of</u>	<u>Grenade</u>	<u>% of</u>	<u>Avg. Burn.</u>	<u>Effective</u>	<u>No.</u>	<u>No.</u>
<u>Grenades</u>	<u>Malfunctions</u>	<u>Malfunctions</u>	<u>Time</u>	<u>Burn. Time</u>	<u>Over</u>	<u>Under</u>

6.4.13 Vulnerability

6.4.13.1 Small Arms Penetration

Present data in tabular form supported by narrative comment, photographs, or other means as required.

6.4.13.2 EMR Vulnerability (when applicable)

- a. Data from this subtest shall be presented in narrative form, supplemented by other required graphical or art presentations to substantiate the conclusions including a curve of squib current versus frequency.  
b. Significant frequencies and operational limitations shall be

included, if possible.

6.4.14 Susceptibility to Sympathetic Detonation

Data from this subtest shall be presented in narrative form supplemented by plots, graphs, and photographs as required to indicate whether grenades are subject to sympathetic detonation, and, if so, under what conditions. Significant explosion delay times and other information shall be explained as required.

6.4.15 Agent/Hardware Compatibility

Data from this subtest shall be presented in narrative form and shall clearly indicate whether a particular agent has an effect on the grenade or its components, or vice versa. The report shall be supplemented by photographs, drawings, or other devices required to support the conclusions.

6.4.16 Human Factors

a. Data from this subtest shall be presented in tabular, narrative, or other suitable form supplemented by photographs and graphic or art presentation, as required.

b. A summary of comments regarding shortcomings and recommended improvements shall be presented.

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#### GLOSSARY

1. Safety Statement: A statement issued by the developing agency which includes information pertaining to operational limitations and specific hazards peculiar to the systems, items, or components to be tested.
2. Safety Release Recommendation: A statement issued by the testing agency containing information pertaining to the safety of, or the hazards involved to personnel, of all materiel, including development types and standard components used in the assemblage of items being tested. Within thirty (30) days of the beginning of the test, this safety release recommendation shall be forwarded to U. S. Army Test and Evaluation Command in compliance with TECOM Regulation 385-6.